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**EVALUATION OF CONTENT ABOUT HUMAN SEXUALITY AND  
PROCREATION OF SCHOOL TEXTBOOKS IN LITHUANIA**

Birutė Obelenienė (a)\*, Andrius Narbekovas (b)

\*Corresponding author

(a) Professor and senior researcher of Research centre on Marriage and Family Vytautas Magnus University,  
Gimnazijos 7, Kaunas, Lithuania, b.obeleniene@ktf.vdu.lt

(b) Professor, Head of Research centre on Marriage and Family of Vytautas Magnus University, Gimnazijos 7,  
Kaunas, Lithuania, a.narbekovas@ktf.vdu.lt

***Abstract***

Sexual education plays an essential role in teaching youth healthy lifestyles and creating mature relationships. The schools textbooks are the most common educational resource and their content is of utmost importance. Correct information can create preconditions for the empowerment of adolescents in making healthy decisions and avoiding risky sexual behaviour. *Purpose of the Study:* the evaluation of the content of textbooks in the areas of human sexuality and procreation in order to find out to what extent these textbooks promote healthy lifestyles, positive attitude toward fertility function as well as avoidance of risky sexual behaviour among adolescent students. *Research Methods:* The study sample consisted of 9 textbooks of biology subject for 12– 17 year old students of Lithuania. Content analysis evaluated the extent to which these books demonstrated reliable scientific information and comply with the principle norms, moral values and goals of “The General Programme of Health and sexuality education and preparation for family life” of Lithuania. *Findings:* All textbooks presented inaccurate information in the areas studied. There is no correct information about human fertility system and fertility awareness, about mechanism of action of hormonal contraception, sexuality is presented mostly as a biological function. The evaluation of textbooks allows stating that the content of evaluated biology textbooks does not comply with the provisions and norms of the “General Programme of Health and sexuality education and preparation for family life” and may be unsuitable for healthy lifestyle education.

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**Keywords:** Sexuality education, fertility awareness, risky sexual behaviour, mechanism of action of hormonal contraception, responsible parenthood.



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## **1. Introduction**

Sexual health and healthy fertility function are one of the most important components of the quality of person's life. Fertility is the natural person's good through which woman and man give life to their child while realizing themselves in parenthood. Fertility is not just only function of human body as for example digestion or blood system, because the realization of human fertility function is directly related to three persons: man, woman and child. A disorder of fertility function and an inability to have children are a big challenge for spouses. Today there is a lot of talk about the causes of infertility, their diagnostics and treatment. Infertility affects both men and women and is directly related to bad psychological wellbeing, depression, low self-esteem. (Chachamovich, JR, Chachamovich E, Ezer & others, 2010). Experience of infertility is a source of psychological distress: infertile women are more likely to experience higher levels of distress than comparison groups, infertility has been observed to result in divorce, loss of economic resources (Greil, Slauson-Blevins, McQuillan, 2010). Dr. Ruchi Galundia's (2016) study showed that women in married couples with primary infertility experience deeper emotional distress as compared to men. The spread of infertility is different in every country. The National, Regional, and Global Trends in Infertility Prevalence Since 1990: A Systematic Analysis of 277 Health Surveys (Mascarenhas, Flaxman, Boerma & oth.), which sought to determine the tendencies of the spread of infertility in 190 countries comparing data from 1990 and 2010 and evaluating many factors causing infertility, presents conclusions that in 2010, among women 20–44 years of age who were exposed to the risk of pregnancy, 1.9% were unable to attain a live birth (primary infertility). Out of women who had had at least one live birth and were exposed to the risk of pregnancy, 10.5% were unable to have another child (secondary infertility). According to WHO, sexually transmitted infections are the main preventable cause of infertility, particularly in women (WHO, 2007, 8). It is difficult to comment on the most prevalent causes of infertility in Lithuania, because no representative studies have been carried out. The only available data come from private infertility clinics providing modern assisted reproductive technologies, which show that among those actively seeking treatment, the main cause of infertility in women in 2001 was damage to the Fallopian tubes, reflected in the high rates of STDs (Kalediene, Nadisauskiene, 2002).

Good sexual health and fertility function very much depend on sexual behaviour. Teens' sexual activities are considered as risky sexual behaviour ( WHO, 2016, 179). Teens' choice between healthy lifestyle and risky sexual behaviour, which can have many negative consequences, such as getting infected with STDs, AIDS/HIV and teen pregnancy, very much depend on their beliefs. The strongest risk and protective factors are teens' own sexual beliefs, values, attitudes, skills, and intentions. Teens are more likely to have sex, to have sex more frequently and to have more partners, if they have permissive attitudes toward premarital sex (Kirby, 2007). Therefore, the prevention of early sexual activities should be the most important goal of health and sexual education for teens. In order to help teenagers make more informed decision about when to begin sexual activity, it is necessary that they receive all the relevant information to make the decision (Irala, Urdiain, Lopez (2008).

## **2. Problem Statement**

Sexual education plays an essential role in teaching youth healthy lifestyles and creating mature relationship. In 2016 the Minister of science and education of Lithuania approved “The General Programme of Health and sexuality education and preparation for family life” (here after “Programme”) which is implemented in accordance with the following principles: each person is unique, sexuality is treated as all-encompassing reality of person. The Programme sets these goals for health and sexual education: to relate sexual expression with fertility and the ability to have children in the future, to relate sexuality with creation of mature relationships, love and responsible parenthood; to take responsible decisions on the debut of sexual life; to evaluate possible consequences of risky sexual behaviour in future perspective; to choose the right solutions for avoiding negative consequences; as well as to educate on moral values, one of the most important of which is to respect human life since its conception, (The Ministry of Science and Education of Lithuania, 2016). Sexual education is a component of health education and preparation for family in Lithuanian schools. The programme is integrated in various subjects, but mostly is taught during biology classes. The school textbooks are the most common educational resource and their content is of utmost importance. The article raises the issue that the content of biology textbooks does not comply with the principle norms, moral values and goals of Programme

## **3. Research Questions**

What kind of information about human sexuality, fertility and procreation is presented in the content of school textbooks of biology subject?

## **4. Purpose of the Study**

The evaluation of the content of textbooks in the areas of human sexuality and procreation in order to find out to what extent these textbooks promote healthy lifestyles, positive attitude toward fertility function as well as avoidance of risky sexual behaviour among adolescent students.

## **5. Research Methods**

The research was carried out in three stages: 1) the purification of parameters of evaluation (dimensions, criteria, indicators) and construction of evaluation instrument; 2) the selection of textbooks; 3) the evaluation and analysis of evaluation data.

### **5.1. The selection of the text books**

These criteria were set for the selection of textbooks: 1) textbooks must be included in the official „List of general education textbooks“ by the Ministry of Science and Education; 2) the content of textbook contains sexuality and procreation topics; 3) textbooks are most often chosen by biology teachers. According to these criteria, 9 textbooks were selected. Their list and pages of evaluated content are presented in Table 01.

**Table 01.** Evaluated textbooks

No.	Publisher	Grade	Title of the text book	Number and title of the chapter	Pages
1.	Alma littera	5	Gamta ir žmogus, 2007	3-Human	56-59
2.	Vaga	7	Biologija, 1999	8- The heredity	145-146
3.	Alma littera	6	Gamta ir žmogus, 2007	7-Grow and mature	130-148
4.	Šviesa	6	Mokslininkų pėdomis, 2008	4-Life creates life	54-73
5.	Šviesa	9	Žmogaus biologija ir sveikata, 2007	6- From where I come in	232-256
6.	Šviesa	9	Biologija, (2), 2011	4-The system of human reproduction 5- Sexual hormones and its function	85-106
7.	Šviesa	9-11	Biologija. Organizmų požymių paveldėjimas ir genų technologijos, 2013.	3-Reproduction	71-119
8.	Briedis	9	Bios, (2) 2010	8- Sexuality, reproduction and development	260-257
9.	Šviesa	9	Pažink gyvybę, (2) 2009	9.3-Reproduction and development of organism	90-100

## 5.2. Construction of evaluation instrument

The evaluation instrument is a construct, comprised of evaluation dimensions, criteria that match them and indicators of these criteria in the evaluated text. According to the provisions and goals of the Programme, 3 dimensions, 8 criteria and their indicators in evaluated text were picked out. When defining indicators, the most attention was paid to their possibility to evaluate whether scientific facts about human sexuality and procreation in textbooks are correct and matching the Programme, whether the information in textbooks presumes the formation of responsible, mature relationships, responsible parenthood, the delay of sexual behaviour. 42 indicators were picked out in total (see Table 2). The abundance of indicators allows avoiding mistakes and inaccuracies while evaluating.

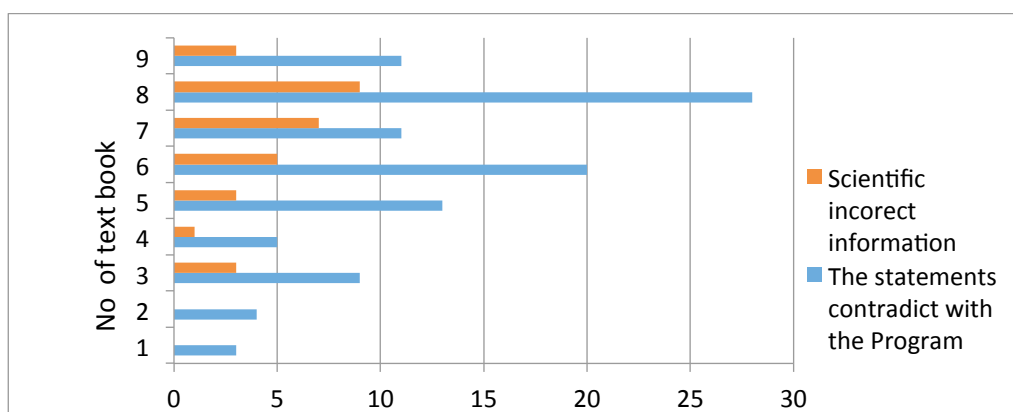
**Table 02.** Construct of the evaluation

Dimensions	Criteria	Indicators	
		Title	Max number
1. The uniqueness of human person	1.1. Sexuality as all-encompassing reality of the person	I <sup>1</sup> , I <sup>2</sup>	2
	1.2. Ability managing sexual desire by will	I <sup>3</sup> , I <sup>4</sup>	2
2. The creation of mature relationships, love and responsible parenthood	2.1. Fertility awareness and managing	I <sup>5</sup> -I <sup>13</sup>	9
	2.2. Family planning and mechanism of action of hormonal contraception	I <sup>14</sup> -I <sup>22</sup>	9
	2.3. Authentic context of the origins of human life	I <sup>23</sup> -I <sup>29</sup>	9
3. The respect to human life since its conception	3.1. Beginning of human being	I <sup>30</sup> -I <sup>32</sup>	3
	3.2. Positive attitude towards pregnancy	I <sup>33</sup> -I <sup>37</sup>	5
	3.3. Embryo protection and IVF	I <sup>38</sup> -I <sup>42</sup>	5
Total number of indicator's			42

The instrument of evaluation used was an evaluation checklist dedicated to each textbook. On the evaluation checklist every indicator has a quantitative evaluation expression from -1 to +1, where +1 means that textbook statement conforms to an indicator, i.e. matches with the provisions and goals of the Programme. -1 means that textbook statement conflicts with an indicator and does not match the provisions and goals of the Programme. 0 means that textbook does not contain information of the indicator. Separately, scientifically false information was also evaluated by counting scientifically false facts, where 1 means one false statement. For ethical reasons, the names of authors of the textbook being reviewed was not feasible on the checklist.

## 6. Findings

In all evaluated textbooks there was information which contradicts with the provisions of the Programme and most of textbooks contain scientifically false information. 1, 2 and 4 textbooks contain the least amount of scientifically false statements because these textbooks are for 5-6 grades and there are no family planning, fertility, artificial fertilization and abortion topics.



**Figure 01.** Number of scientific incorrect statements and statements which contradict with the Programme

### 6.1. Sexuality as all-encompassing reality of the person

All evaluated textbooks, which talk about human procreation, do not make a difference between human procreation and animal reproduction. The emergence of humans is illustrated in the general context of animal's reproduction. The sexuality is reduced to the difference of male and female sexual organs. In the context of procreation the physiology of sexual organs is presented as autonomous, independent from the activity of human brain. Textbooks do not contain information that human is capable to control sexual desire by will. Only one textbook positively evaluates teens' abstention from sexual behaviour: (9, 100).

### 6.2. Fertility awareness

Responsible motherhood and fatherhood means that men and women are not only gifted with the ability to have children, but also with the intellectual ability and capacity to understand and fully appreciate their fertility (Narbekovas, 2011). Fertility awareness means the knowledge of how one's own reproductive system functions, and the biological and sociological facts about human fertility. It means

the ability to know if a woman is fertile or infertile in order to determine if having sexual intercourse on the particular day could result in pregnancy. It is the full appreciation of one's own sexuality and procreative power. Knowing one's body and fertility empowers the person to make a truly healthy, informed and responsible decision on his/her sexual behaviour. Fertility awareness is a way to help young people understand their maturing bodies and how to protect their own reproductive health (Institute for Reproductive Health, 2011). Discussing physical and emotional changes and signs of fertility during puberty helps young people become knowledgeable about how their bodies function and empowers them to make appropriate decisions about sexual behaviour. Helping young people understand their fertility dispels myths and misconceptions about reproductive health and makes them better prepared for adulthood (Institute for Reproductive Health, (2011). The main aspects that teens should be introduced to while learning about fertility are the neurophysiology of human sexual system, the hypothalamus-pituitary axis and the regulation of the menstrual cycle of woman, the real signs of fertility and how to recognise them (Direito, 2011). But evaluated textbooks the essential information for fertility awareness is not presented. Only one textbook presents the neurophysiologic regulation of the menstrual cycle of woman and correctly names gonadotrophic and sexual hormones, regulating woman's menstrual cycle, and their interaction (1, 100). Other textbooks do not name these hormones, they are called "some sexual hormones" (1, 234). Also the meaning of sexual hormones for general woman's health is not presented.

With regard to fertility awareness, textbooks presented the most misleading and scientifically false information. They used incorrect terms "sexual cycle" instead of "menstrual cycle" (8,238), incorrectly indicated the principles of fertility awareness (the measurement of body temperature, mucus observation method), incorrectly indicated the use of emergency contraception, and incorrect facts about conception.

### **6.3. The Family planning and mechanism of action of hormonal contraception**

To assure that a given choice about FP methods is truly informed, women need to know about all the characteristics, factors and issues that could influence their decisions (Lopez-del Burgo, Mikolajczyk, Osorio & oth. 2013). Natural family planning (NFP) for avoiding pregnancy is a highly effective family planning method (Frank-Herrmann, Heil, Gnoth & oth., 2007). The scientific findings of the effectiveness of methods based on fertility awareness allow stating that they are "competitive" with modern contraception, not mentioning the absence of side effects of these methods or their economic attraction (Juškevičius, 2007, 15). But only one of evaluated textbooks indicates that NFP method is effective (7, 115). Other textbooks state that "... NFP is not as reliable as artificial" (8, 253), "is only suitable for women who have regular cycle" (9,1; 6, 103; 5, 241). Most often NFP is presented as rhythmic calendar method, even though this method is based on preliminary calculation and not on constant monitoring of the cycle, as it is required by modern methodology of NFP methods (Direito, 2011).

When talking about hormonal contraception with teens, it is very important to present them with the correct information on: 1) the mechanism of action of hormonal contraception, 2) side effects and 3) the necessity to consult with a doctor.

1) Hormonal contraception, emergency contraceptive pill act primarily by inhibiting fertilization but they may also exhibit postfertilization effects (Larimore, Stanford, 2000). Mechanisms of actions which have postfertilization and postimplantation effects mean that they interfere with the development of an

embryo (Lopez-del Burgo, Mikolajczyk, Osorio & oth. 2012). Therefore, the revelation of the postfertilization effects of hormonal contraception is very important for the implementation of the provisions of the Programme on respect for human life since moment of conception. But none of textbooks explain the mechanism of postfertilization action of hormonal contraception.

2) Only two textbooks (7 and 8) talk about side effects of hormonal contraception, they reveal the danger of thromboembolism in relation with smoking.

3) Four textbooks (or 67%) – 5, 6, 8 and 9 – indicate that it is necessary to consult with a doctor before starting to use hormonal contraception.

#### **6.4. The authentic context of the origins of human life**

It means that only human children and parents live in a special relationship, which is initiated before the child's birth and continues until the very end of their lives. Human life has to be transmitted according to the human nature and under the conditions that are most favourable for a child to be conceived, grow and develop. Only biology textbooks for juniors present the conception of human life in the context of love, family and parenthood: “the conception takes place when mother and father”, “husband and wife makes a family. But family becomes complete when there are children” (1, 58). None of the textbooks present sexual pubescence as a joyous fact that teenager becomes a fertile person who can have children in the future. Most often sexual pubescence is described as a problem causing unpleasant changes: “due to the activity of sexual hormones the mood of teenagers constantly changes, they feel self-doubt...” (3, 131); “during menstruation many women feel tired, they are irritable, they suffer from bad mood, feel the need to cry...” (6, 55); “during menstruation women experience headaches and pains in lower abdomen” (9, 236); “not only body, but also the psyche changes” (8, 248).

#### **6.5. The respect to human life since its conception**

Three most important criteria are essential in order to implement this important provision. 1) Knowing when human life starts; 2) positive attitude towards pregnancy and understanding that abortion terminates life; 3) protection of embryos in case of artificial fertilization.

1) *Moment of the beginning of human life.* The knowledge that a human embryo is human life must play a crucial role in the formation of human conscience, because in an ambiguous situation, only conscience can dictate which action is good and which is bad. False conscience, for instance, if based on false information, simply enslaves and destroys personal freedom (Irving, 2000). If it is recognized that human life does not begin at the moment of conception, then abortion will not terminate human life and no moral problems should arise. However, if it is human life, then “the moral principles of respect and inviolability” must be applied (Have, Meulen, Leeuwen, 2003, 283). Only one out of 9 evaluated textbooks states that new life begins from the moment of conception (7, 99). None of the textbooks contain the term “embryo” to describe new life. The terms used are: “germ” (8-258, 7-99, 104), “fertilized egg cell” (9, 134), “zygote” (2-145, 5-239, 6-93, 9-96), “ball of cells” (3-135).

2) Positive attitude towards pregnancy was not encountered in textbooks. Pregnancy is mostly discussed in negative context: „how to avoid pregnancy, unexpected pregnancy, unwanted pregnancy“ (5-242, 244, 9-99, 243, 244), „pregnancy prevention“ (8, 254). Practically there is no information about abortion, two textbooks

(5 and 9) explains the consequences for women who terminate pregnancy, male responsibility is not discussed in any of evaluated textbooks, and none of them state that abortion is the termination of human life.

3) None of evaluated textbooks talk about the protection of embryos in case of artificial fertilization.

## 7. Conclusion

The evaluation of textbooks allows stating that the content of evaluated biology textbooks does not comply with the provisions and norms of the “General Programme of Health and sexuality education and preparation for family life”. Most of textbooks human procreation present in general context of animal reproduction and do not make a clear difference between human procreation and animal reproduction. Only one textbook for 12-13 year old teens talks about human conception in the context of parenthood and family. Pregnancy is discussed mostly in negative context. Sexual puberty is presented as a problem.

Human sexuality is reduced to the difference of male and female sexual organs. Only one textbook present the neurophysiologic regulation of sexual system and describes the hypothalamus-pituitary axis and the regulation of the menstrual cycle of woman. Other textbooks present information which allows the formation of opinion that sexual organs function autonomously, independently from the activities of human brain. Textbooks do not discuss the management of sexual desire by will. Only one textbook presents information that the best solution for teens is sexual abstinence.

None of textbooks use the term “embryo”, the beginning of human life is called “germ, fertilized egg cell, zygote, ball of cells”. Only one textbook clearly states that human life starts from the moment of the conception.

Only two textbooks (7 and 8) talk about negative side effects of hormonal contraception, they reveal the danger of thromboembolism in relation with smoking. But none of textbooks explain the mechanism of post fertilization action of hormonal contraception.

Results suggest a need for alternative textbooks based on better scientific evidence. It is essential that textbooks provide correct information about the human fertility, fertility awareness and a more integrated concept of sexuality. The correct information can create preconditions for empowering adolescents to make healthy decisions and avoid risk sexual behaviour.

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